



### ABSTRACT OF THE DISCLOSURE

A synthesizer is disclosed in which a speech waveform is synthesized by selecting a synthetic starting waveform segment and then generating a sequence of further segments. The further waveform segments are generated based jointly upon the value of the immediately-  
5 preceding segment and upon a model of the dynamics of an actual sound similar to that being generated. In particular, a method is disclosed of a voiced speech sound comprising calculating each new output value from the previous output value using data modeling the evolution, over a short time interval, of the voiced speech sound to be synthesized. This sequential generation of waveform segments enables a synthesized sequence of speech  
10 waveforms to be generated of any duration. In addition, a low-dimensional state space representation of speech signals are used in which successive pitch pulse cycles are superimposed to estimate the progression of the cyclic speech signal within each cycle.

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